

# SERIES ATE-DMG



Model ATE 6-100 DMG

## ATE-DMG MODEL TABLE

MODEL	d-c OUTPUT RANGE		MAXIMUM OVERVOLTAGE SETTING	MAXIMUM OVERCURRENT SETTING	OUTPUT IMPEDANCE VOLTAGE MODE			OUTPUT IMPEDANCE CURRENT MODE		
	VOLTS	AMPS			SERIES R	SERIES L (1)	FAST	SHUNT R (2)	SLOW	SHUNT C (3)
<b>SIZE "E" FULL-RACK (1000 Watt)</b>										
ATE 6-100 DMG	0-6	0-100	6.59V	110A	1.2μΩ	0.5μH	5μH	12kΩ	22,000μF	15μF
ATE 15-50 DMG	0-15	0-50	16.5V	55A	6μΩ	0.5μH	5μH	30kΩ	12,000μF	6μF
ATE 25-40 DMG	0-25	0-40	27.5V	44A	12.5μΩ	1μH	10μH	50kΩ	11,000μF	4μF
ATE 36-30 DMG	0-36	0-30	38.3V	33A	24μΩ	1μH	10μH	72kΩ	9,500μF	3μF
ATE 55-20 DMG	0-55	0-20	66V	22A	55μΩ	2μH	20μH	110kΩ	5,200μF	2.25μF
ATE 75-15 DMG	0-75	0-15	82V	16.5A	0.1mΩ	2μH	20μH	150kΩ	3,400μF	1.5μF
ATE 100-10 DMG	0-100	0-10	110V	11A	0.2mΩ	4μH	40μH	200kΩ	1,200μF	0.75μF
ATE 150-7 DMG	0-150	0-7	185V	7.7A	0.42mΩ	4μH	40μH	300kΩ	1,050μF	0.3μF

- (1) For the calculation of dynamic impedance in voltage mode.  
 (2) Based on 0.5mA load effect in FAST mode.  
 (3) For the calculation of dynamic impedance in current mode.

**Kepco's 1000 watt instrument-grade digital power supplies, series ATE-DMG, are linear low-noise power supplies designed to respond very quickly and precisely to voltage and current setting instructions delivered interactively by the GPIB (IEEE 488.2) or from a front panel keypad. When programmed from the bus, the ATE-DMG power supplies respond to the SCPI (Standard Commands for Programmable Instruments) common language for instruments used in an automatic test system.**



ATE-DMG digital power supplies are locally controlled exclusively through a 24-key panel keypad. This offers full control over the voltage and current settings, as well as overvoltage, overcurrent and a time setting. The keypad allows the user to store as many as 40 combinations of these parameters and to loop back onto itself to produce repetitive programs. The setting values as well as the actual output delivered to the load are displayed in the two-line, 16 character back-lit LCD.

Remote control is via the built-in IEEE-488.2 interface that offers full talk-listen functionality on the bus. The settings and the actual voltage-current values are read back on the bus upon command. The output can be modulated by analog signals in the same fashion as Kepco's non-digital ATE-series power supplies. The ATE-DMG retains the ATE-series' signature high-speed control mode which enables rapid output programming and fast voltage recovery to load changes in current-control mode.

**CE** ATE-DMG are CE marked per the Low Voltage Directive (LVD), EN61010-1.



Rear View of Model ATE 6-100 DMG

The dynamic characteristics are tabulated in the Dynamic Specifications Table. Analog control of voltage and current is via a pair of remote signals (0-10V for voltage, 0-1V for current). Two uncommitted op-amps are provided internally to allow available control signals to be scaled and, if necessary, inverted to suit the circumstances.

#### ATE-DMG DYNAMIC SPECIFICATIONS

OUTPUT VOLTAGE RATING	PROGRAMMING BANDWIDTH (KHz)		PROGRAMMING TIME CONSTANT ( $\mu$ sec)	
	Typical	minimum	Typical	maximum
6V	23.0	16.0	7.0	10.0
15V	20.0	10.6	8.0	15.0
25V	11.5	8.0	14.0	20.0
36V	8.0	6.4	20.0	25.0
55V	4.8	4.0	33.0	40.0
75V	4.3	3.5	37.0	45.0
100V	2.7	2.5	60.0	65.0
150V	1.8	1.7	88.0	95.0

#### ATE-DMG STATIC SPECIFICATIONS

INFLUENCE QUANTITY	OUTPUT EFFECTS VOLTAGE MODE		OUTPUT EFFECTS CURRENT MODE		OFFSETS	
	Typ.	Max.	Typ.	Max.	$\Delta E_{i0}$	$\Delta I_{i0}$
Source Voltage (min.-max.)	<0.0005% $E_O$ max.	0.001% $E_O$ max.	<0.002% $I_O$ max.	0.005% $I_O$ max.	<1 $\mu$ V	<1nA
Load (no load-full load)	<0.001% $E_O$ max.	0.002% $E_O$ max.	<0.5 mA(1)	1 mA(1)	—	—
Time (8-hour drift)	<0.005% $E_O$ max.	0.01% $E_O$ max.	<0.01% $I_O$ max.	0.02% $I_O$ max.	<20 $\mu$ V	<1nA
Temperature, per $^{\circ}$ C	<0.005% $E_O$ max.	0.01% $E_O$ max.	<0.01% $I_O$ max.	0.02% $I_O$ max.	<20 $\mu$ V	<2nA
Ripple and Noise (2)	rms: <0.1mV	0.3mV	<0.01% $I_O$ max.	0.03% $I_O$ max.	—	—
(Slow Mode)	p-p:(3) <1mV	3mV	<0.1% $I_O$ max.	0.3% $I_O$ max.	—	—
Ripple and Noise (2)	rms: <1mV	3mV	<0.01% $I_O$ max.	0.03% $I_O$ max.	—	—
(Fast Mode)	p-p:(3) <10mV	30mV	<0.1% $I_O$ max.	0.3% $I_O$ max.	—	—

(1) For  $I_O > 50A$ , load effect = 2mA typ., 5mA max. In slow mode, the output capacitor adds 0-6mA to current mode load effect.

(2) One terminal grounded so that common mode current does not flow through load or current-sense resistor.

(3) BW: 20Hz-10MHz.

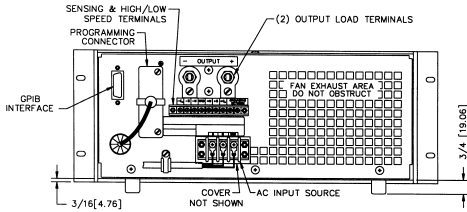
#### FEATURES

- Linear control for low noise: 100 microvolts typical in voltage mode; and high precision: 0.0005% source effect {regulation} in voltage mode.
- Voltage and current control with equivalent performance. A high speed mode allows fast-recovery current-controlled stabilization into a varying load.
- Overvoltage and overcurrent settings individually programmed by the front panel keypad or remotely by the bus with a programmable delay to allow for reactive-load transients.
- A manually set overvoltage crowbar monitors the output to protect sensitive loads. This setting is done only from the front panel and cannot be modified by the keypad or GPIB.
- Non-volatile storage of programmed sequences or active settings. The ATE-DMG contains 40 memory locations that store voltage, current, overvoltage, overcurrent, time (how long the parameters are in effect) and the next address in the sequence.
- Full talk-listen control from a GPIB (IEEE 488-2) using SCPI language.
- Master-slave series and parallel operation to provide increased capability.
- Local control: Front panel keypad entries are used for setting and adjusting the output. The keypad can be used to execute commands directly or to introduce a program to be run later or cycled. Calibration of the ATE-DMG is done from the keypad using a password-protected, menu-driven procedure.

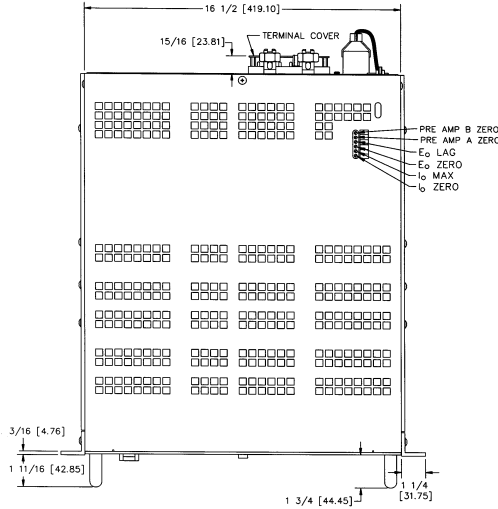


## OUTLINE DIMENSIONAL DRAWINGS

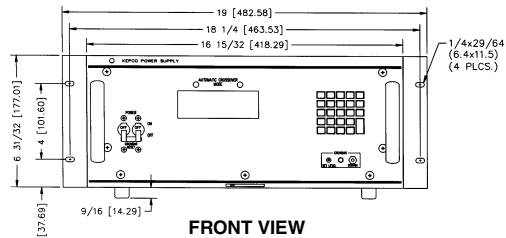
Fractional dimensions in light face type are in inches, dimensions in parentheses are in millimeters.  
Tolerance:  $\pm 1/64"$  (0.4) between mounting holes  
 $\pm 1/32"$  (0.8) other dimensions



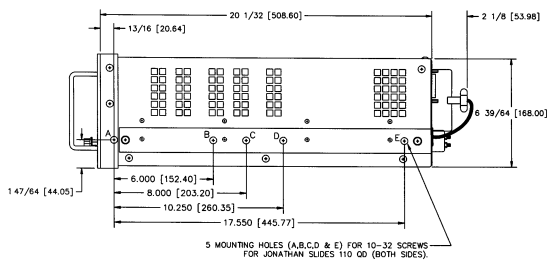
REAR VIEW



TOP VIEW



FRONT VIEW



SIDE VIEW

(1) 0-6V models: 0.25V.

## ATE-DMG GENERAL SPECIFICATIONS

SPECIFICATION	RATING/DESCRIPTION	CONDITION	
<b>INPUT</b>			
a-c Voltage	95-113, 105-125, 190-226, 210-250V a-c	User selectable	
Current	20A a-c	Max load, 125V a-c	
Frequency	47-65Hz	Range	
<b>OUTPUT</b>			
d-c Output	Series pass	Transistor	
Voltage	0-100% of rated voltage	Usable range limited to approx. 1% to 100%. Max. current is factory set to 105% of rated output current.	
Current	0-100% of rated current		
Type of Stabilizer	Automatic crossover	Voltage/current	
Voltage	0 to 100% of rating	Adjustment range for temp 0-55°C	
Current	0 to 100% of rating	For temp 65°C	
Storage Temp. Range	(-)-40°C to 85°C		
Error Sense	0.5V per load wire(1)	Voltage allowance	
Isolation Voltage	500V d-c or peak	Output to ground	
Leakage Current	<5 microamperes	rms at 115V a-c	
Output to Ground	<50 microamperes	p-p at 115V a-c	
Series Connection	500V	Max voltage off ground	
Parallel Connection	Automatic	Use current mode limiting	
	Current sharing	Use master-slave connection	
	Redundancy type	External or-ing diodes	
OVP	Type	Crowbar	
	Control	Local or program or track	
	Trigger time	50 microseconds	Normal
	Trigger time	500 microseconds	Delayed
	Threshold	Min. 0.5 volts, or 2% E <sub>0</sub> max.	Whichever is greater
Temp. coefficient	<0.02% of E <sub>0</sub> max. per °C		
<b>CONTROL</b>			
Program. Accuracy	Voltage	<0.025% E <sub>0</sub> max	
	Current	<0.25% I <sub>0</sub> max	
Readback/display Accuracy	Voltage	<0.05% E <sub>0</sub> max	
	Current	<0.275% I <sub>0</sub> max	
Voltage Remote	12-bit digital		
Current Limit	10-turn precision rheostat		
Remote	12-bit digital		
Programming Time	1.2ms max	0-100%	
Data Entry	Local	24 keypads	Front panel
	Remote	GPIB	SCPI commands
Dynamics	Normal (slow)	dV/dt = I/C	See tabulated value of C in the model table
		See Table	Dynamic spec table
	Fast mode		
<b>MECHANICAL</b>			
Weight	96lb (43.6Kg)	Packed for shipment	
Dimensions	inches	6 <sup>31</sup> / <sub>32</sub> x 19 x 20 <sup>1</sup> / <sub>64</sub>	Full rack size
	mm	177 x 482.6 x 504.8	
a-c Source Connections	Terminal block		
d-c Output Connections	Rear binding post	I <sub>o</sub> <30A	
	Rear compression studs	I <sub>o</sub> ≥30A	
User Port	50-terminal connector		
Indicators	Three LEDs	Voltage/Current/OVP	
Remote Control Programming	One standard GPIB connector	Rear, SCPI & IEEE 488.2 commands	
Digital Display Front Panel	Voltage, current, mode status, menu, program, etc.	2 x 16 character alphanumeric LCD with LED backlight	
Mounting (in std 19" racks)	Mounting "ears" supplied		
Cooling	Forced air	High efficiency, single bearing fans, permanently lubricated with special low-noise metallic blades. Exhaust to rear.	
Finish: Fed Std 595	Dark & light gray, color 26440	Front panel, 2 tone	

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